Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your P.O. #: 001563
Your Project #: 2014 TREATED SUMMER SAMPLE
Site Location: NRSC WTP
Your C.O.C. #: A185329

Attention: REAL GUILBAULT

NEWELL REGIONAL SERVICES CORPORATION
330 CANAL STREET
BOX 638
BROOKS, AB
CANADA T1R 1B6

Report Date: 2014/10/23
Report #: R1670505
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B487301
Received: 2014/09/30, 10:15

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2014/10/01	AB SOP-00005	SM 22 2320 B m
Bromate	1	N/A	2014/10/06	CAL SOP-00040	SM 22 4110 D m
BTEX/F1 in Water by HS GC/MS	1	N/A	2014/10/04	AB SOP-00039	CCME CWS/EPA 8260C m
Cadmium - low level CCME (Total)	1	2014/09/30	2014/10/06	AB SOP-00014 / AB SOP-00043	EPA 200.8 R5.4 m
Chlorine (Free)	1	N/A	2014/10/01	AB SOP-00032	SM 22 4500-Cl G m
Chloramines, Residual	1	N/A	2014/10/01	AB SOP-00032	SM 22 4500-Cl G m
Chlorine (Total)	1	N/A	2014/10/01	AB SOP-00032	SM 22 4500-Cl G m
Chloride by Automated Colourimetry	1	N/A	2014/10/04	AB SOP-00020	SM 22-4500-Cl G m
True Colour	1	N/A	2014/10/06	CAL SOP-00049	SM 22 2120 C m
Conductivity @25C	1	N/A	2014/10/01	AB SOP-00005	SM 22 2510 B m
Fluoride	1	N/A	2014/10/08	AB SOP-00005	SM 22 4500-F C m
Sulphide (as H2S)	1	N/A	2014/09/30	CAL SOP-00062	SM 4500-S2 D
Hardness	1	N/A	2014/10/06	AB WI-00065	SM 2340B
Mercury - Low Level (Total)	1	2014/10/03	2014/10/03	CAL SOP-00007	EPA 1631 RE 20460 m
Elements by ICP-Dissolved-Lab Filtered	1	N/A	2014/10/04	AB SOP-00042	EPA 200.7 CFR 2012 m
Elements by ICP - Total	1	2014/10/04	2014/10/04	AB SOP-00014 / AB SOP-00042	EPA 200.7 CFR 2012 m
Elements by ICPMS - Total	1	2014/10/04	2014/10/04	AB SOP-00014 / AB SOP-00043	EPA 200.8 R5.4 m
Ion Balance	1	N/A	2014/09/30	AB WI-00065	SM 1030E
Sum of cations, anions	1	N/A	2014/10/06	AB WI-00065	SM 1030E
Ammonia-N (Total)	1	N/A	2014/10/14	AB SOP-00007	EPA 350.1 R2.0 m
Nitrate and Nitrite	1	N/A	2014/10/02	AB SOP-00023	Auto Calc
Nitrate + Nitrite-N (calculated)	1	N/A	2014/10/02	AB SOP-00023	SM 4110-B
Nitrogen, (Nitrite, Nitrate) by IC	1	N/A	2014/10/02	AB SOP-00023	SM 22 4110 B m
pH @25C	1	N/A	2014/10/06	AB SOP-00005	SM 22 4500-H+B m
pH @25°C (Alkalinity titrator)	1	N/A	2014/10/01	AB SOP-00005	SM 22 4500-H+B m
Orthophosphate by Konelab	1	N/A	2014/10/06	AB SOP-00025	SM 22 4500-P A,B,F m
Sulphide	1	N/A	2014/09/30	CAL SOP-00062	SM 22 4500 S2-D m
Sulphate by Automated Colourimetry	1	N/A	2014/10/04	AB SOP-00018	SM 22 4500-SO4 E m
Cyanide (Total) Low level	1	2014/10/01	2014/10/01	CAL SOP-00073	EPA 335.4 m R1 m
Total Dissolved Solids (Filt. Residue)	1	2014/10/03	2014/10/03	AB SOP-00065	SM 22 2540 C m
Total Dissolved Solids (Calculated)	1	N/A	2014/10/06	AB WI-00065	SM 1030E
Total Trihalomethanes Calculation	1	N/A	2014/10/03	CAL SOP-00104	Auto Calc
Total Trihalomethanes Calculation	1	N/A	2014/10/08	CAL SOP-00104	Auto Calc

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CERTIFICATE OF ANALYSIS

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Trihalomethanes in Water by HS GC/MS	1	N/A	2014/10/02	CAL SOP-00227	EPA 8260C R3 m
Trihalomethanes in Water by HS GC/MS	1	N/A	2014/10/07	CAL SOP-00227	EPA 8260C R3 m
Carbon (Total Organic) (1)	1	N/A	2014/10/01	CAL SOP-00077	MMCW 119 1996 m
Turbidity	1	N/A	2014/10/03	CAL SOP-00081	SM 22 2130 B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Alina Kenstavicius
23 Oct 2014 16:39:01 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Alina Kenstavicius, Project Manager
Email: AKenstavicius@maxxam.ca
Phone# (403) 219-3669

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Maxxam Job #: B487301
Report Date: 2014/10/23

NEWELL REGIONAL SERVICES CORPORATION
Client Project #: 2014 TREATED SUMMER SAMPLE
Site Location: NRSC WTP
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Sampler Initials: RG

AT1 BTEX AND F1 WATER (WATER)

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Volatiles				
Benzene	ug/L	ND	0.40	7664361
Toluene	ug/L	ND	0.40	7664361
Ethylbenzene	ug/L	ND	0.40	7664361
m & p-Xylene	ug/L	ND	0.80	7664361
o-Xylene	ug/L	ND	0.40	7664361
Xylenes (Total)	ug/L	ND	0.80	7664361
F1 (C6-C10) - BTEX	ug/L	ND	100	7664361
(C6-C10)	ug/L	ND	100	7664361
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	103	N/A	7664361
4-Bromofluorobenzene (sur.)	%	93	N/A	7664361
D4-1,2-Dichloroethane (sur.)	%	103	N/A	7664361

ND = Not detected
N/A = Not Applicable
RDL = Reportable Detection Limit

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ROUTINE WATER - FILTERED (WATER)

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Calculated Parameters				
Anion Sum	meq/L	4.3	N/A	7658949
Cation Sum	meq/L	4.2	N/A	7658949
Hardness (CaCO3)	mg/L	170	0.50	7658946
Ion Balance	N/A	0.96	0.010	7658948
Dissolved Nitrate (NO3)	mg/L	0.12	0.044	7658923
Nitrate plus Nitrite (N)	mg/L	0.028	0.010	7658924
Dissolved Nitrite (NO2)	mg/L	ND	0.033	7658923
Total Dissolved Solids	mg/L	230	10	7658953
Misc. Inorganics				
Conductivity	uS/cm	400	1.0	7661492
pH	pH	8.42	N/A	7661494
Anions				
Alkalinity (PP as CaCO3)	mg/L	1.5	0.50	7661489
Alkalinity (Total as CaCO3)	mg/L	140	0.50	7661489
Bicarbonate (HCO3)	mg/L	160	0.50	7661489
Carbonate (CO3)	mg/L	1.9	0.50	7661489
Hydroxide (OH)	mg/L	ND	0.50	7661489
Dissolved Sulphate (SO4)	mg/L	54	1.0	7666546
Dissolved Chloride (Cl)	mg/L	16	1.0	7666539
Nutrients				
Dissolved Nitrite (N)	mg/L	ND	0.010	7661820
Dissolved Nitrate (N)	mg/L	0.028	0.010	7661820
Lab Filtered Elements				
Dissolved Aluminum (Al)	mg/L	0.26	0.040	7666591
Dissolved Calcium (Ca)	mg/L	40 (1)	0.30	7666591
Dissolved Iron (Fe)	mg/L	ND	0.060	7666591
Dissolved Magnesium (Mg)	mg/L	16 (1)	0.20	7666591
Dissolved Manganese (Mn)	mg/L	ND	0.0040	7666591
Dissolved Potassium (K)	mg/L	1.7 (1)	0.30	7666591
Dissolved Sodium (Na)	mg/L	18 (1)	0.50	7666591

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(1) Dissolved greater than total. Results within acceptable limits of precision.

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CHLORAMINES (WATER)

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Calculated Parameters				
Residual Chloramines	mg/L	0.060	0.020	7659433
Misc. Inorganics				
Free Chlorine	mg/L	0.10 (1)	0.020	7661658
Total Chlorine	mg/L	0.16 (1)	0.020	7661659

RDL = Reportable Detection Limit
(1) Sample received past method-specified hold time. Sample analyzed immediately upon receipt at the lab.
Matrix Spike exceeds acceptance limits due to matrix interference. Reanalysis yields similar results.

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REGULATED METALS (CCME/AT1) - TOTAL

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Low Level Elements				
Total Cadmium (Cd)	ug/L	ND	0.020	7659432
Elements				
Total Aluminum (Al)	mg/L	0.21	0.0030	7666032
Total Antimony (Sb)	mg/L	ND	0.00060	7666032
Total Arsenic (As)	mg/L	0.0011	0.00020	7666032
Total Barium (Ba)	mg/L	0.066	0.010	7666036
Total Beryllium (Be)	mg/L	ND	0.0010	7666032
Total Boron (B)	mg/L	ND	0.020	7666036
Total Calcium (Ca)	mg/L	37	0.30	7666036
Total Chromium (Cr)	mg/L	ND	0.0010	7666032
Total Cobalt (Co)	mg/L	ND	0.00030	7666032
Total Copper (Cu)	mg/L	ND	0.00020	7666032
Total Iron (Fe)	mg/L	ND	0.060	7666036
Total Lead (Pb)	mg/L	ND	0.00020	7666032
Total Lithium (Li)	mg/L	ND	0.020	7666036
Total Magnesium (Mg)	mg/L	15	0.20	7666036
Total Manganese (Mn)	mg/L	ND	0.0040	7666036
Total Molybdenum (Mo)	mg/L	0.0012	0.00020	7666032
Total Nickel (Ni)	mg/L	0.00056	0.00050	7666032
Total Phosphorus (P)	mg/L	ND	0.10	7666036
Total Potassium (K)	mg/L	1.6	0.30	7666036
Total Selenium (Se)	mg/L	0.00028	0.00020	7666032
Total Silicon (Si)	mg/L	1.0	0.10	7666036
Total Silver (Ag)	mg/L	ND	0.00010	7666032
Total Sodium (Na)	mg/L	17	0.50	7666036
Total Strontium (Sr)	mg/L	0.20	0.020	7666036
Total Sulphur (S)	mg/L	15	0.20	7666036
Total Thallium (Tl)	mg/L	ND	0.00020	7666032
Total Tin (Sn)	mg/L	ND	0.0010	7666032
Total Titanium (Ti)	mg/L	ND	0.0010	7666032
Total Uranium (U)	mg/L	0.00065	0.00010	7666032

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REGULATED METALS (CCME/AT1) - TOTAL

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Total Vanadium (V)	mg/L	ND	0.0010	7666032
Total Zinc (Zn)	mg/L	ND	0.0030	7666032

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RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Calculated Parameters				
Hydrogen Sulphide (H2S)	mg/L	ND	0.0020	7659435
Misc. Inorganics				
Strong Acid Dissoc. Cyanide (CN)	mg/L	ND	0.0020	7661278
pH	pH	8.39	N/A	7668782
Total Organic Carbon (C)	mg/L	2.0	0.50	7661224
Total Dissolved Solids	mg/L	230	10	7664503
Anions				
Dissolved Bromate	mg/L	ND	0.010	7667965
Dissolved Fluoride (F)	mg/L	0.16	0.050	7671718
Sulphide	mg/L	ND	0.0019	7659520
Nutrients				
Total Ammonia (N)	mg/L	ND	0.050	7676929
Orthophosphate (P)	mg/L	ND	0.0030	7668564
Physical Properties				
True Colour	PtCo units	3.0	2.0	7668682
Physical Properties				
Turbidity	NTU	ND	0.10	7665667

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ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		KS7133		
Sampling Date		2014/09/29 10:30		
COC Number		A185329		
	UNITS	**2014 SUMMER**	**RDL**	**QC Batch**
Low Level Elements				
Total Mercury (Hg)	ug/L	ND	0.0020	7664781

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VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		KS7133		KU4727		
Sampling Date		2014/09/29 10:30		2014/09/29 10:30		
COC Number		A185329		A185329		
	UNITS	**2014 SUMMER**	**QC Batch**	**THM HDR#1**	**RDL**	**QC Batch**
Volatiles						
Bromodichloromethane	ug/L	6.2	7662457	6.6	0.50	7669280
Bromoform	ug/L	ND	7662457	ND	0.50	7669280
Chlorodibromomethane	ug/L	ND	7662457	ND	1.0	7669280
Chloroform	ug/L	47	7662457	49	0.50	7669280
Total Trihalomethanes	ug/L	53	7659436	56	2.0	7667909
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	99	7662457	100	N/A	7669280
4-Bromofluorobenzene (sur.)	%	99	7662457	100	N/A	7669280
D4-1,2-Dichloroethane (sur.)	%	98	7662457	93	N/A	7669280

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General Comments

NTA, Glyphosate, DGT, OC & OP Pesticides results are attached to this report. The reference number for these results from Maxxam Campobello is B4I1938.

AT1 BTEX AND F1 WATER (WATER) Comments

Sample KS7133-13 BTEX/F1 in Water by HS GC/MS: Headspace in sample vial was noted at the time of extraction.

Results relate only to the items tested.

NEWELL REGIONAL SERVICES CORPORATION
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Quality Assurance Report

Maxxam Job Number: CB487301

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7659520	LS0	Spiked Blank	Sulphide	2014/09/30		105	%	80 - 120
		Method Blank	Sulphide	2014/09/30	ND, RDL=0.0019		mg/L	
		RPD	Sulphide	2014/09/30	1.6		%	20
7661224	LY	Matrix Spike	Total Organic Carbon (C)	2014/10/01		NC	%	80 - 120
		Spiked Blank	Total Organic Carbon (C)	2014/10/01		98	%	80 - 120
		Method Blank	Total Organic Carbon (C)	2014/10/01	ND, RDL=0.50		mg/L	
		RPD	Total Organic Carbon (C)	2014/10/01	2.2		%	20
7661278	AP1	Matrix Spike	Strong Acid Dissoc. Cyanide (CN)	2014/10/01		51 (1)	%	80 - 120
		QC Standard	Strong Acid Dissoc. Cyanide (CN)	2014/10/01		110	%	80 - 120
		Spiked Blank	Strong Acid Dissoc. Cyanide (CN)	2014/10/01		101	%	80 - 120
		Method Blank	Strong Acid Dissoc. Cyanide (CN)	2014/10/01	ND, RDL=0.0020		mg/L	
		RPD	Strong Acid Dissoc. Cyanide (CN)	2014/10/01	NC		%	20
7661489	JLD	Spiked Blank	Alkalinity (Total as CaCO3)	2014/10/01		98	%	80 - 120
		Method Blank	Alkalinity (PP as CaCO3)	2014/10/01	ND, RDL=0.50		mg/L	
			Alkalinity (Total as CaCO3)	2014/10/01	ND, RDL=0.50		mg/L	
			Bicarbonate (HCO3)	2014/10/01	ND, RDL=0.50		mg/L	
			Carbonate (CO3)	2014/10/01	ND, RDL=0.50		mg/L	
			Hydroxide (OH)	2014/10/01	ND, RDL=0.50		mg/L	
		RPD	Alkalinity (PP as CaCO3)	2014/10/01	NC		%	20
			Alkalinity (Total as CaCO3)	2014/10/01	0.6		%	20
			Bicarbonate (HCO3)	2014/10/01	0.6		%	20
			Carbonate (CO3)	2014/10/01	NC		%	20
			Hydroxide (OH)	2014/10/01	NC		%	20
7661492	JLD	Spiked Blank	Conductivity	2014/10/01		100	%	90 - 110
		Method Blank	Conductivity	2014/10/01	ND, RDL=1.0		uS/cm	
		RPD	Conductivity	2014/10/01	0.7		%	20
7661494	JLD	Spiked Blank	pH	2014/10/01		100	%	97 - 102
		RPD	pH	2014/10/01	1.1		%	N/A
7661658	LS0	Matrix Spike [KS7133-07]	Free Chlorine	2014/10/01		55 (1)	%	80 - 120
		Spiked Blank	Free Chlorine	2014/10/01		93	%	80 - 120
		Method Blank	Free Chlorine	2014/10/01	ND, RDL=0.020		mg/L	
		RPD [KS7133-07]	Free Chlorine	2014/10/01	NC		%	20
7661659	LS0	Matrix Spike [KS7133-07]	Total Chlorine	2014/10/01		14 (1)	%	80 - 120
		Spiked Blank	Total Chlorine	2014/10/01		100	%	80 - 120
		Method Blank	Total Chlorine	2014/10/01	ND, RDL=0.020		mg/L	
		RPD [KS7133-07]	Total Chlorine	2014/10/01	0		%	20
7661820	KSH	Matrix Spike	Dissolved Nitrite (N)	2014/10/02		100	%	80 - 120
			Dissolved Nitrate (N)	2014/10/02		102	%	80 - 120
		Spiked Blank	Dissolved Nitrite (N)	2014/10/02		101	%	80 - 120
			Dissolved Nitrate (N)	2014/10/02		103	%	80 - 120
		Method Blank	Dissolved Nitrite (N)	2014/10/02	ND, RDL=0.010		mg/L	
			Dissolved Nitrate (N)	2014/10/02	ND, RDL=0.010		mg/L	
		RPD	Dissolved Nitrite (N)	2014/10/02	NC		%	20
			Dissolved Nitrate (N)	2014/10/02	0.3		%	20
7662457	SLZ	Matrix Spike	1,4-Difluorobenzene (sur.)	2014/10/02		100	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/02		106	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/02		100	%	70 - 130
			Bromodichloromethane	2014/10/02		110	%	70 - 130
			Bromoform	2014/10/02		108	%	70 - 130
			Chlorodibromomethane	2014/10/02		104	%	70 - 130
			Chloroform	2014/10/02		98	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene (sur.)	2014/10/02		100	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/02		105	%	70 - 130

NEWELL REGIONAL SERVICES CORPORATION
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Quality Assurance Report (Continued)

Maxxam Job Number: CB487301

QA/QC Batch Num	Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7662457	SLZ	Spiked Blank	D4-1,2-Dichloroethane (sur.)	2014/10/02		99	%	70 - 130
			Bromodichloromethane	2014/10/02		106	%	70 - 130
			Bromoform	2014/10/02		106	%	70 - 130
			Chlorodibromomethane	2014/10/02		102	%	70 - 130
			Chloroform	2014/10/02		97	%	70 - 130
		Method Blank	1,4-Difluorobenzene (sur.)	2014/10/02		99	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/02		99	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/02		100	%	70 - 130
			Bromodichloromethane	2014/10/02	ND, RDL=0.50		ug/L	
			Bromoform	2014/10/02	ND, RDL=0.50		ug/L	
			Chlorodibromomethane	2014/10/02	ND, RDL=1.0		ug/L	
			Chloroform	2014/10/02	ND, RDL=0.50		ug/L	
		RPD [KS7133-13]	Bromodichloromethane	2014/10/02	0		%	40
			Bromoform	2014/10/02	NC		%	40
			Chlorodibromomethane	2014/10/02	NC		%	40
			Chloroform	2014/10/02	1.5		%	40
7664361	RSU	Matrix Spike	1,4-Difluorobenzene (sur.)	2014/10/03		104	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/03		101	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/03		106	%	70 - 130
			Benzene	2014/10/03		92	%	70 - 130
			Toluene	2014/10/03		85	%	70 - 130
			Ethylbenzene	2014/10/03		91	%	70 - 130
			m & p-Xylene	2014/10/03		90	%	70 - 130
			o-Xylene	2014/10/03		92	%	70 - 130
			(C6-C10)	2014/10/03		84	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene (sur.)	2014/10/04		104	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/04		102	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/04		106	%	70 - 130
			Benzene	2014/10/04		99	%	70 - 130
			Toluene	2014/10/04		94	%	70 - 130
			Ethylbenzene	2014/10/04		101	%	70 - 130
			m & p-Xylene	2014/10/04		100	%	70 - 130
			o-Xylene	2014/10/04		101	%	70 - 130
			(C6-C10)	2014/10/04		102	%	70 - 130
		Method Blank	1,4-Difluorobenzene (sur.)	2014/10/04		102	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/04		93	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/04		103	%	70 - 130
			Benzene	2014/10/04	ND, RDL=0.40		ug/L	
			Toluene	2014/10/04	ND, RDL=0.40		ug/L	
			Ethylbenzene	2014/10/04	ND, RDL=0.40		ug/L	
			m & p-Xylene	2014/10/04	ND, RDL=0.80		ug/L	
			o-Xylene	2014/10/04	ND, RDL=0.40		ug/L	
			Xylenes (Total)	2014/10/04	ND, RDL=0.80		ug/L	
			F1 (C6-C10) - BTEX	2014/10/04	ND, RDL=100		ug/L	
			(C6-C10)	2014/10/04	ND, RDL=100		ug/L	
		RPD	Benzene	2014/10/04	NC		%	40
			Toluene	2014/10/04	NC		%	40
			Ethylbenzene	2014/10/04	NC		%	40
			m & p-Xylene	2014/10/04	NC		%	40
			o-Xylene	2014/10/04	NC		%	40
			Xylenes (Total)	2014/10/04	NC		%	40
			F1 (C6-C10) - BTEX	2014/10/04	NC		%	40
			(C6-C10)	2014/10/04	NC		%	40
7664503	HE1	Matrix Spike	Total Dissolved Solids	2014/10/03		101	%	80 - 120
		Spiked Blank	Total Dissolved Solids	2014/10/03		102	%	80 - 120

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7664503	HE1	Method Blank	Total Dissolved Solids	2014/10/03	ND, RDL=10		mg/L	
		RPD	Total Dissolved Solids	2014/10/03	16.2		%	20
7664781	RK3	Matrix Spike	Total Mercury (Hg)	2014/10/03		102	%	80 - 120
		Spiked Blank	Total Mercury (Hg)	2014/10/03		98	%	80 - 120
		Method Blank	Total Mercury (Hg)	2014/10/03	ND, RDL=0.0020		ug/L	
		RPD	Total Mercury (Hg)	2014/10/03	NC		%	20
7665667	KKV	Spiked Blank	Turbidity	2014/10/03		97	%	80 - 120
		Method Blank	Turbidity	2014/10/03	ND, RDL=0.10		NTU	
		RPD	Turbidity	2014/10/03	5.1		%	20
7666032	HC7	Matrix Spike	Total Aluminum (Al)	2014/10/04		NC	%	80 - 120
			Total Antimony (Sb)	2014/10/04		94	%	80 - 120
			Total Arsenic (As)	2014/10/04		92	%	80 - 120
			Total Beryllium (Be)	2014/10/04		94	%	80 - 120
			Total Chromium (Cr)	2014/10/04		94	%	80 - 120
			Total Cobalt (Co)	2014/10/04		92	%	80 - 120
			Total Copper (Cu)	2014/10/04		89	%	80 - 120
			Total Lead (Pb)	2014/10/04		93	%	80 - 120
			Total Molybdenum (Mo)	2014/10/04		96	%	80 - 120
			Total Nickel (Ni)	2014/10/04		91	%	80 - 120
			Total Selenium (Se)	2014/10/04		92	%	80 - 120
			Total Silver (Ag)	2014/10/04		92	%	80 - 120
			Total Thallium (Tl)	2014/10/04		95	%	80 - 120
			Total Tin (Sn)	2014/10/04		93	%	80 - 120
			Total Titanium (Ti)	2014/10/04		86	%	80 - 120
			Total Uranium (U)	2014/10/04		93	%	80 - 120
			Total Vanadium (V)	2014/10/04		97	%	80 - 120
			Total Zinc (Zn)	2014/10/04		83	%	80 - 120
		Spiked Blank	Total Aluminum (Al)	2014/10/04		83	%	80 - 120
			Total Antimony (Sb)	2014/10/04		97	%	80 - 120
			Total Arsenic (As)	2014/10/04		96	%	80 - 120
			Total Beryllium (Be)	2014/10/04		89	%	80 - 120
			Total Chromium (Cr)	2014/10/04		96	%	80 - 120
			Total Cobalt (Co)	2014/10/04		96	%	80 - 120
			Total Copper (Cu)	2014/10/04		92	%	80 - 120
			Total Lead (Pb)	2014/10/04		94	%	80 - 120
			Total Molybdenum (Mo)	2014/10/04		97	%	80 - 120
			Total Nickel (Ni)	2014/10/04		93	%	80 - 120
			Total Selenium (Se)	2014/10/04		94	%	80 - 120
			Total Silver (Ag)	2014/10/04		93	%	80 - 120
			Total Thallium (Tl)	2014/10/04		95	%	80 - 120
			Total Tin (Sn)	2014/10/04		91	%	80 - 120
			Total Titanium (Ti)	2014/10/04		93	%	80 - 120
			Total Uranium (U)	2014/10/04		89	%	80 - 120
			Total Vanadium (V)	2014/10/04		100	%	80 - 120
			Total Zinc (Zn)	2014/10/04		91	%	80 - 120
		Method Blank	Total Aluminum (Al)	2014/10/04	ND, RDL=0.0030		mg/L	
			Total Antimony (Sb)	2014/10/04	ND, RDL=0.00060		mg/L	
			Total Arsenic (As)	2014/10/04	ND, RDL=0.00020		mg/L	
			Total Beryllium (Be)	2014/10/04	ND, RDL=0.0010		mg/L	
			Total Chromium (Cr)	2014/10/04	ND, RDL=0.0010		mg/L	
			Total Cobalt (Co)	2014/10/04	ND, RDL=0.00030		mg/L	
			Total Copper (Cu)	2014/10/04	ND, RDL=0.00020		mg/L	
			Total Lead (Pb)	2014/10/04	ND, RDL=0.00020		mg/L	
			Total Molybdenum (Mo)	2014/10/04	ND, RDL=0.00020		mg/L	
			Total Nickel (Ni)	2014/10/04	ND, RDL=0.00050		mg/L	

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7666032	HC7	Method Blank	Total Selenium (Se)	2014/10/04	ND, RDL=0.00020		mg/L	
			Total Silver (Ag)	2014/10/04	ND, RDL=0.00010		mg/L	
			Total Thallium (Tl)	2014/10/04	ND, RDL=0.00020		mg/L	
			Total Tin (Sn)	2014/10/04	ND, RDL=0.0010		mg/L	
			Total Titanium (Ti)	2014/10/04	ND, RDL=0.0010		mg/L	
			Total Uranium (U)	2014/10/04	ND, RDL=0.00010		mg/L	
			Total Vanadium (V)	2014/10/04	ND, RDL=0.0010		mg/L	
			Total Zinc (Zn)	2014/10/04	0.0040, RDL=0.0030		mg/L	
		RPD	Total Aluminum (Al)	2014/10/04	0.9		%	20
			Total Antimony (Sb)	2014/10/04	NC		%	20
			Total Arsenic (As)	2014/10/04	NC		%	20
			Total Beryllium (Be)	2014/10/04	NC		%	20
			Total Chromium (Cr)	2014/10/04	NC		%	20
			Total Cobalt (Co)	2014/10/04	NC		%	20
			Total Copper (Cu)	2014/10/04	2.0		%	20
			Total Lead (Pb)	2014/10/04	NC		%	20
			Total Molybdenum (Mo)	2014/10/04	NC		%	20
			Total Nickel (Ni)	2014/10/04	5.6		%	20
			Total Selenium (Se)	2014/10/04	NC		%	20
			Total Silver (Ag)	2014/10/04	NC		%	20
			Total Thallium (Tl)	2014/10/04	NC		%	20
			Total Tin (Sn)	2014/10/04	NC		%	20
			Total Titanium (Ti)	2014/10/04	13.3		%	20
			Total Uranium (U)	2014/10/04	NC		%	20
			Total Vanadium (V)	2014/10/04	NC		%	20
			Total Zinc (Zn)	2014/10/04	NC		%	20
7666036	STI	Matrix Spike	Total Barium (Ba)	2014/10/05		83	%	80 - 120
			Total Boron (B)	2014/10/05		85	%	80 - 120
			Total Calcium (Ca)	2014/10/05		NC	%	80 - 120
			Total Iron (Fe)	2014/10/05		NC	%	80 - 120
			Total Lithium (Li)	2014/10/05		85	%	80 - 120
			Total Magnesium (Mg)	2014/10/05		92	%	80 - 120
			Total Manganese (Mn)	2014/10/05		86	%	80 - 120
			Total Phosphorus (P)	2014/10/05		86	%	80 - 120
			Total Potassium (K)	2014/10/05		91	%	80 - 120
			Total Silicon (Si)	2014/10/05		NC	%	80 - 120
			Total Sodium (Na)	2014/10/05		86	%	80 - 120
			Total Strontium (Sr)	2014/10/05		84	%	80 - 120
		Spiked Blank	Total Barium (Ba)	2014/10/05		84	%	80 - 120
			Total Boron (B)	2014/10/05		86	%	80 - 120
			Total Calcium (Ca)	2014/10/05		90	%	80 - 120
			Total Iron (Fe)	2014/10/05		88	%	80 - 120
			Total Lithium (Li)	2014/10/05		86	%	80 - 120
			Total Magnesium (Mg)	2014/10/05		91	%	80 - 120
			Total Manganese (Mn)	2014/10/05		88	%	80 - 120
			Total Phosphorus (P)	2014/10/05		86	%	80 - 120
			Total Potassium (K)	2014/10/05		91	%	80 - 120
			Total Silicon (Si)	2014/10/05		84	%	80 - 120
			Total Sodium (Na)	2014/10/05		87	%	80 - 120
			Total Strontium (Sr)	2014/10/05		85	%	80 - 120
		Method Blank	Total Barium (Ba)	2014/10/04	ND, RDL=0.010		mg/L	
			Total Boron (B)	2014/10/04	ND, RDL=0.020		mg/L	
			Total Calcium (Ca)	2014/10/04	ND, RDL=0.30		mg/L	
			Total Iron (Fe)	2014/10/04	ND, RDL=0.060		mg/L	
			Total Lithium (Li)	2014/10/04	ND, RDL=0.020		mg/L	

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7666036	STI	Method Blank	Total Magnesium (Mg)	2014/10/04	ND, RDL=0.20		mg/L	
			Total Manganese (Mn)	2014/10/04	ND, RDL=0.0040		mg/L	
			Total Phosphorus (P)	2014/10/04	ND, RDL=0.10		mg/L	
			Total Potassium (K)	2014/10/04	ND, RDL=0.30		mg/L	
			Total Silicon (Si)	2014/10/04	ND, RDL=0.10		mg/L	
			Total Sodium (Na)	2014/10/04	ND, RDL=0.50		mg/L	
			Total Strontium (Sr)	2014/10/04	ND, RDL=0.020		mg/L	
			Total Sulphur (S)	2014/10/04	ND, RDL=0.20		mg/L	
		RPD	Total Barium (Ba)	2014/10/04	NC		%	20
			Total Boron (B)	2014/10/04	NC		%	20
			Total Calcium (Ca)	2014/10/04	0.8		%	20
			Total Iron (Fe)	2014/10/04	0.5		%	20
			Total Lithium (Li)	2014/10/04	NC		%	20
			Total Magnesium (Mg)	2014/10/04	0.6		%	20
			Total Manganese (Mn)	2014/10/04	NC		%	20
			Total Phosphorus (P)	2014/10/04	NC		%	20
			Total Potassium (K)	2014/10/04	NC		%	20
			Total Silicon (Si)	2014/10/04	0.4		%	20
			Total Sodium (Na)	2014/10/04	NC		%	20
			Total Strontium (Sr)	2014/10/04	NC		%	20
			Total Sulphur (S)	2014/10/04	2.2		%	20
7666539	KP9	Matrix Spike	Dissolved Chloride (Cl)	2014/10/04		110	%	80 - 120
		Spiked Blank	Dissolved Chloride (Cl)	2014/10/04		108	%	80 - 120
		Method Blank	Dissolved Chloride (Cl)	2014/10/04	ND, RDL=1.0		mg/L	
		RPD	Dissolved Chloride (Cl)	2014/10/04	8.6		%	20
7666546	KP9	Matrix Spike	Dissolved Sulphate (SO4)	2014/10/04		NC	%	80 - 120
		Spiked Blank	Dissolved Sulphate (SO4)	2014/10/04		105	%	80 - 120
		Method Blank	Dissolved Sulphate (SO4)	2014/10/04	ND, RDL=1.0		mg/L	
		RPD	Dissolved Sulphate (SO4)	2014/10/04	1.3		%	20
7666591	STI	Matrix Spike [KS7133-01]	Dissolved Aluminum (Al)	2014/10/04		95	%	80 - 120
			Dissolved Calcium (Ca)	2014/10/04		89	%	80 - 120
			Dissolved Iron (Fe)	2014/10/04		86	%	80 - 120
			Dissolved Magnesium (Mg)	2014/10/04		88	%	80 - 120
			Dissolved Manganese (Mn)	2014/10/04		88	%	80 - 120
			Dissolved Potassium (K)	2014/10/04		87	%	80 - 120
			Dissolved Sodium (Na)	2014/10/04		81	%	80 - 120
		Spiked Blank	Dissolved Aluminum (Al)	2014/10/04		98	%	80 - 120
			Dissolved Calcium (Ca)	2014/10/04		97	%	80 - 120
			Dissolved Iron (Fe)	2014/10/04		89	%	80 - 120
			Dissolved Magnesium (Mg)	2014/10/04		93	%	80 - 120
			Dissolved Manganese (Mn)	2014/10/04		91	%	80 - 120
			Dissolved Potassium (K)	2014/10/04		90	%	80 - 120
			Dissolved Sodium (Na)	2014/10/04		86	%	80 - 120
		Method Blank	Dissolved Aluminum (Al)	2014/10/04	ND, RDL=0.040		mg/L	
			Dissolved Calcium (Ca)	2014/10/04	ND, RDL=0.30		mg/L	
			Dissolved Iron (Fe)	2014/10/04	ND, RDL=0.060		mg/L	
			Dissolved Magnesium (Mg)	2014/10/04	ND, RDL=0.20		mg/L	
			Dissolved Manganese (Mn)	2014/10/04	ND, RDL=0.0040		mg/L	
			Dissolved Potassium (K)	2014/10/04	ND, RDL=0.30		mg/L	
			Dissolved Sodium (Na)	2014/10/04	ND, RDL=0.50		mg/L	
		RPD [KS7133-01]	Dissolved Aluminum (Al)	2014/10/04	0.2		%	20
			Dissolved Calcium (Ca)	2014/10/04	2.4		%	20
			Dissolved Iron (Fe)	2014/10/04	NC		%	20
			Dissolved Magnesium (Mg)	2014/10/04	2.0		%	20

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7666591	STI	RPD [KS7133-01]	Dissolved Manganese (Mn)	2014/10/04	NC		%	20
			Dissolved Potassium (K)	2014/10/04	3.1		%	20
			Dissolved Sodium (Na)	2014/10/04	2.8		%	20
7667965	NW4	Matrix Spike						
		[KS7133-01]	Dissolved Bromate	2014/10/06		89	%	80 - 120
		Spiked Blank	Dissolved Bromate	2014/10/06		101	%	80 - 120
		Method Blank	Dissolved Bromate	2014/10/06	ND, RDL=0.010		mg/L	
		RPD [KS7133-01]	Dissolved Bromate	2014/10/06	NC		%	20
7668564	HC	Matrix Spike	Orthophosphate (P)	2014/10/06		104	%	80 - 120
		Spiked Blank	Orthophosphate (P)	2014/10/06		104	%	80 - 120
		Method Blank	Orthophosphate (P)	2014/10/06	ND, RDL=0.0030		mg/L	
		RPD	Orthophosphate (P)	2014/10/06	NC		%	20
7668682	ZI	Matrix Spike						
		[KS7133-01]	True Colour	2014/10/06		107	%	80 - 120
		Spiked Blank	True Colour	2014/10/06		101	%	80 - 120
		Method Blank	True Colour	2014/10/06	ND, RDL=2.0		PtCo units	
		RPD [KS7133-01]	True Colour	2014/10/06	NC		%	20
7668782	SCC	Spiked Blank	pH	2014/10/06		100	%	97 - 102
		RPD	pH	2014/10/06	0.5		%	N/A
7669280	SLZ	Matrix Spike	1,4-Difluorobenzene (sur.)	2014/10/07		100	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/07		104	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/07		96	%	70 - 130
			Bromodichloromethane	2014/10/07		109	%	70 - 130
			Bromoform	2014/10/07		110	%	70 - 130
			Chlorodibromomethane	2014/10/07		104	%	70 - 130
			Chloroform	2014/10/07		97	%	70 - 130
		Spiked Blank	1,4-Difluorobenzene (sur.)	2014/10/07		101	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/07		104	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/07		93	%	70 - 130
			Bromodichloromethane	2014/10/07		107	%	70 - 130
			Bromoform	2014/10/07		107	%	70 - 130
			Chlorodibromomethane	2014/10/07		103	%	70 - 130
			Chloroform	2014/10/07		100	%	70 - 130
		Method Blank	1,4-Difluorobenzene (sur.)	2014/10/07		100	%	70 - 130
			4-Bromofluorobenzene (sur.)	2014/10/07		101	%	70 - 130
			D4-1,2-Dichloroethane (sur.)	2014/10/07		95	%	70 - 130
			Bromodichloromethane	2014/10/07	ND, RDL=0.50		ug/L	
			Bromoform	2014/10/07	ND, RDL=0.50		ug/L	
			Chlorodibromomethane	2014/10/07	ND, RDL=1.0		ug/L	
			Chloroform	2014/10/07	ND, RDL=0.50		ug/L	
		RPD [KU4727-01]	Bromodichloromethane	2014/10/07	1.4		%	40
			Bromoform	2014/10/07	NC		%	40
			Chlorodibromomethane	2014/10/07	NC		%	40
			Chloroform	2014/10/07	2.5		%	40
7671718	JLD	Matrix Spike	Dissolved Fluoride (F)	2014/10/08		101	%	80 - 120
		Spiked Blank	Dissolved Fluoride (F)	2014/10/08		100	%	80 - 120
		Method Blank	Dissolved Fluoride (F)	2014/10/08	ND, RDL=0.050		mg/L	
		RPD	Dissolved Fluoride (F)	2014/10/08	1		%	20
7676929	BL5	Matrix Spike	Total Ammonia (N)	2014/10/14		NC	%	80 - 120
		Spiked Blank	Total Ammonia (N)	2014/10/14		81	%	80 - 120
		Method Blank	Total Ammonia (N)	2014/10/14	ND, RDL=0.050		mg/L	
		RPD	Total Ammonia (N)	2014/10/14	4.0		%	20

N/A = Not Applicable
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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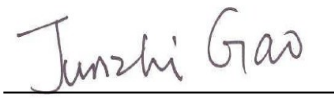
QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.
Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

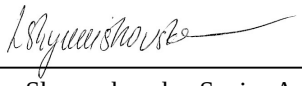
Validation Signature Page

Maxxam Job #: B487301

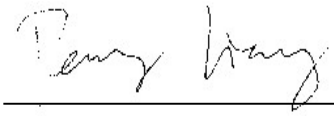
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Janet Gao, Senior Analyst, Organics Department



Luba Shymushovska, Senior Analyst, Organic Department



Peng Liang, Analyst II

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.